Abstracts

An Automated 60 GHz Open Resonator System for Precision Dielectric Measurement

M.N. Afsar, X. Li and H. Chi. "An Automated 60 GHz Open Resonator System for Precision Dielectric Measurement." 1990 Transactions on Microwave Theory and Techniques 38.12 (Dec. 1990 [T-MTT] (1990 Symposium Issue)): 1845-1853.

An automated open resonator system is designed and constricted for precision measurement of the loss tangent and dielectric permittivity of low absorbing materials at 60 GHz. The use of a high-Q hemispherical Fabry-Perot cavity together with highly stabilized synthesized phase locked Gunn oscillator sources and a superheterodyne receiver enabled us to measure loss tangent value as low as 10 µ rad. Both cavity length variation and frequency variation techniques were utilized to provide precise data.

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